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NAME OF REQUESTOR

RYAN WOOD

AGENCY OR ADDRESS

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THE RESEARCH AND DEVELOPMENT BOARD
Washington 25, D.C.

*First four
items on
EC agenda
Special Meeting
22 Nov 48*

EC 60/5

22 November 1948

- ITEM NO. 1 : Consideration of Eleven (11) Department of the Air Force Research and Development Facility Proposals for Fiscal Year 1950.
- REFERENCES :
- (a) Ltr from Department of the Air Force to RDB, dtd 10 August 1948, subject: "Submission of Air Force Research and Development Facility Program for Fiscal Year 1950".
 - (b) RDB 137/1, Policy Concerning Review of Proposals Involving Research and Development Establishments, Facilities, and Supporting Utilities, dtd 22 July 1948.
 - (c) EC 205/1, Interim RDB Internal Procedure for the Consideration of Research and Development Establishment, Facility, and Supporting Utility Proposals, dtd 24 August 1948.
- ATTACHED : RDB 77/5, Suggested agenda item for the 17th Meeting of the Board.
- NV 10/3, Report of the Committee on Navigation, dated 28 October 1948, concerning Proposal No. A 41-3 (Second increment in amount of \$300,000 for Instrument Landing Test Facility, Griffiss Air Force Base, Rome, N.Y.).
- OR 26/1, Report of the Committee on Ordnance, dated 13 October 1948, concerning Proposal No. A 33-1 (Armament Engineering Test Facility (estimated \$1,875,000), Eglin Air Force Base, Valpariso, Fla.).
- PS 26/1, Report of the Committee on Basic Physical Sciences, dated 19 October 1948, concerning Proposal No. A 36-14 (Applied Research Building (estimated \$510,000) at Wright-Patterson Air Force Base, Dayton, Ohio).
- GS 70/31 Report of the Committee on Geophysical Sciences, dated 6 October 1948, concerning Proposal Nos. A 31-7 (Electronics and Atmospheric Research Test Building (estimated \$426,000) at Holloman Air Force Base, Alamogordo, N.M.), A 31-8 (Electronics and Atmospheric Research Test Stations (estimated \$500,000) in conjunction with Holloman Air Force Base, Alamogordo, N.M.), A 40-3 (Rocket Firing Station for Upper Air Soundings (estimated \$1,500,000) in Alaska), and A 99-3 (Second increment in amount of \$350,000 for Solar Observatory Facility (Upper Air Research Station) at Sacramento Peak, Alamogordo, N.M.).

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EC 60-5 (cont'd)

EL 112/1, (EL 112/1.3 and 112/1.7), Report of the Committee on Electronics, dated 28 September 1948, concerning Proposals Nos. A 40-1 (Electronics Field Laboratory (estimated \$300,000) at Ladd Air Force Base, Alaska), and A 41-2 (Conversion of Buildings (estimated \$2,750,000) at Griffiss Air Force Base, Rome, N.Y.)

AR 38/3, Report of the Committee on Aeronautics, dated 30 September 1948, concerning Proposals Nos. A 11-2 (Second increment in amount of \$500,000, for Mt. Washington Climatic Projects Laboratory (ice research) Gorham, N.H.) and A 40-2 (Cold Weather Torque Stand for Turbo-Prop Test Cell (estimated \$3,500,000) at Ladd Air Force Base, Alaska).

1. Reference (a) forwarded the subject facility proposals for fiscal year 1950 to RDB for consideration and action.

2. Attachment RDB 77/5 summarizes the findings and recommendations of the committees and is submitted for the action of the Executive Council and transmittal to the Board. The remaining attachments are committee reports as indicated, review of the proposals concerned having been completed in accordance with reference (b).

- 2 -

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THE RESEARCH AND DEVELOPMENT BOARD
Washington 25, D.C.

RDB 77/5
(22 Nov 48)

Agenda to the 17th Meeting

Item No. : Consideration of Eleven (11) Department of the
Air Force Research and Development Facility
Proposals for Fiscal Year 1950

REFERENCES: (a) Ltr. from Department of the Air Force to RDB,
dtd 10 August 1948, subject: "Submission of Air
Force Research and Development Facility Program
for Fiscal Year 1950".

(b) RDB 137/1, Policy Concerning Review of Proposals
Involving Research and Development Establishments,
Facilities, and Supporting Utilities, dated
22 July 1948.

ATTACHED : RDB 77/5.1 to 77/5.11 inclusive, Summaries, findings and
actions concerning the subject proposals.

1. Reference (a) forwarded the subject facility proposals for fiscal
year 1950 to RDB for consideration and action, and were reviewed by interested
committees in accordance with reference (b).

2. By virtue of the authority delegated to the Executive Council by the
Board under the Rules of Organization and Procedure approved by the Board at
its 15th meeting, the Council, on the basis of committee review and recommen-
dations, has acted on the subject proposals as indicated in RDB 77/5.1 to
77/5.11 inclusive, which are attached for the information of the Board.

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RDB 77/5.1

22 November 1948

Proposal No. A 11-2, "Building for Mt. Washington Climatic Projects Laboratory (Ice Research) (Second increment), Gorham, N.H." - \$500,000.

Sponsor: U. S. Air Force

SUMMARY: - The Department of the Air Force proposes additional construction at Mt. Washington to the ice research facility. This proposal is a second increment (\$500,000), the first having been submitted in the fiscal year 1949 budget for \$303,000 and was approved in RDE 77/3 (6 Dec. 47). (Item 5, RDE 3/10, 19 Dec. 47, and RDB 2/10.6). This facility will provide for the study of methods of anti-icing protection for turbo-jet engines. Many designs are at present under consideration, but due to lack of adequate testing facilities, it has been impossible to prove the adequacy of these designs. It is also necessary to conduct investigations to de-ice or anti-ice propellers, spinners, contravanes, fans and helicopter blades in natural icing conditions.

FINDINGS: - The provisions of RDE 137/1 and RDE 36/2 have been satisfied. The Bureau of Aeronautics installation at Mt. Washington is the only related facility using natural weather phenomena, and consists of a small temporary test rig being utilized for cold weather tests for aircraft jet engines. This facility is inadequate since only small scale airfoil sections and models can be investigated and is limited to the testing of one engine at a time. No duplication is evident in similar existing facilities. Much information is lacking, particularly in the jet engine field with regard to icing flights, which may have a serious effect on the overall development and operation of aircraft.

ACTION: - The proposal is approved.

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RDE 77/5.2

22 November 1948

Proposal No. A 31-7, "Electronics and Atmospheric Research Test Building, Holloman Air Force Base, Alamogordo, N.M." - \$426,000.

Sponsor: U. S. Air Force

SUMMARY:- The "Electronics and Research Test Building" to be located at Holloman Air Force Base, Alamogordo, N.M., replaces existing temporary type facilities which are not economical for permanent conversion and are unsuited to the nature of the experimental equipment utilized and do not adequately support the program. The proposed facilities will be used in connection with research warheads for the V-2 firing, Blossom Project installations, and the testing of experimental items used in upper atmosphere investigations by some 30 university contractors.

FINDINGS: - The Electronics Committee has indirectly supported this proposal by indorsing high altitude ionospheric research projects performed with V-2 and other type missiles launched in this area. The Panel on the Upper Atmosphere, Committee on the Geophysical Sciences, of the Board has consistently urged the providing of proper facilities to carry on effectively the researches in the upper atmosphere by their enthusiastic support of requests from and actions of the Upper Atmosphere Rocket Research Panel (formerly V-2 Panel). The instrumentation of rockets for atmospheric research is a complicated problem at best, made more difficult in view of the broad range of temperature and prevalence of atmospheric pollution (dust) in the Holloman Air Force Base area. The instrumentation and pre-flight testing of research missiles has been carried on in a partially converted temporary school and a link-trainer building. These temporary structures do not facilitate the work, but make it very difficult and awkward to carry out an effective research program. This situation will become more acute as the test activities at Holloman AFB increase. Growth of the program began in July 1948 and will gradually accelerate to a substantially larger continuous workload by July 1949. It is uneconomical to convert present temporary facilities into permanent structures, and they cannot be made into a temperature controlled and dust-proof type which is essential for this type laboratory. The existing temporary buildings are poorly arranged and have inadequate wiring, utilities and flooring being part of Phase II of the emergency housing program of World War II. This proposal has been properly coordinated with other departments of the National Military Establishment.

ACTION: - The proposal is approved.

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RDB 77/5.3

22 November 1948

Proposal No. A 31-8, "Electronics and Atmospheric Research Test Stations, Holloman Air Force Base, Alamogordo, N. M." - \$500,000.

Sponsor: U.S. Air Force

SUMMARY: - The proposal is for a new establishment of electronics and atmospheric test stations to be located in the Holloman Air Force Base area at an estimated cost of \$500,000.

FINDINGS: - The test stations will eventually total twelve (12) and will be located in the Holloman Air Force Base area, with some consideration being given to possible location of stations at distances up to 2000 miles distance. These facilities are required for personnel engaged in collecting data, processing it for convenient utilization for research and evaluation purposes, and coordinating the efforts of the laboratory and range instrumentation stations. The facilities will be used by organizations under contract to the USAF as well as USAF groups. These facilities form a part of the master plan for this establishment. To construct the range instrumentation facilities it is estimated that only 20% of the total funds requested will be used for buildings, the remainder being used to provide access roads as trails over extremely rough terrain, phone and power service for communication and instrumentation purposes, water storage and cooking facilities. There are some thirty (30) university and private research agencies under contract to the Air Forces which are engaged in such typical projects as high-altitude constant level balloon tests, ozone measurements, ionospheric studies, firing of V-2 rockets, launching of some thirty (30) instrumented aerobees, and the determination of the physical characteristics of the atmosphere. This proposal has been coordinated with other departments of the National Military Establishment.

ACTION: - The proposal is approved.

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RDB 77/5.4

22 November 1948

Proposal No. A 33-1, "Armament Engineering
Test Facility, Eglin Air Force Base,
Valpariso, Fla." - \$1,875,000

Sponsor: U. S. Air Force

SUMMARY: - The proposal covers the construction of an Armament Engineering Test Facility at Eglin Air Force Base to implement the assessment and evaluation phase of aircraft armament development projects.

FINDINGS: - The subject proposal has been reviewed in accordance with the provisions of RDB 137/1.

There is at present a considerable backlog of testing at existing aircraft armament test facilities. Many other research and development programs in aircraft armament are approaching the test and evaluation stage. The RDB Committee on Ordnance has, in effect, recommended in its "Report on Current and FY 1949 Ordnance Research and Development Program" an increase in research and development effort in the field of aircraft armament. The requirement for augmentation of testing facilities for this purpose is evident.

The proposed facility at Eglin Air Force Base is necessary to the conduct of the research and development program in aircraft armament, provided the use of the facility is confined to engineering, service, and tactical determinations.

The proposed facility is considered practicable, and the extent of the coordination between the military departments is satisfactory.

ACTION: - The proposal is approved.

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By	NARA Date 05/24/14

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RDB 77/5.5

22 November 1948

Proposal No. A 36-14, "Applied Research Building,
Wright-Patterson Air Force Base, Dayton, Ohio" -
\$510,000

Sponsor: U. S. Air Force

SUMMARY: - The subject facility is a proposed building to house the activities of the Applied Research Group (name recently changed to "Office of Air Force Research"), Air Materiel Command, at Wright-Patterson Air Force Base. This is a new agency established for the conduct of basic and applied research, for consulting service to all technical offices of the Air Force and for the technical supervision of contracts entered into by the Air Force with universities and research institutes. It is to be developed around a group of nine technical appointees of Grade P-9, statutory provision for whom was provided for in FY 1949. The fields of interest of this agency will traverse the basic sciences, including mathematics, fluid mechanics, physics, chemistry, metallurgy, biophysics, geophysics, etc., including also applied mathematics (with computing equipment).

FINDINGS: - The formation of the Office of Air Force Research meets an urgent military requirement of the Air Force, it being a logical step to provide for effective technical leadership and coordination of basic research and development in that Department. In accordance with the terms of RDB 137/1 and RDB 36/2, the record of coordination with technical agencies of other Departments received full review and there are no evidences that the functions of the Office of Air Force Research could effectively be performed by any other agency or facility.

ACTION: - The proposal is approved.

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RDB 77/5.6

22 November 1948

Proposal No. A 40-1, "Electronics Field
Laboratory, Ladd Air Force Base, Alaska" -
\$300,000

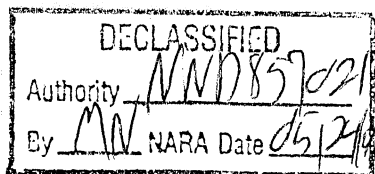
Sponsor: U. S. Air Force

SUMMARY: - The proposal covers construction to house equipment and provide laboratory space for radio wave propagation investigations. and electronics sub-division activities in the Alaskan area. The facility is to be jointly used by the Air Force and the Army Signal Corps, and is the result of action initiated within the RDB for wave propagation work in the Arctic.

FINDINGS: - The proposed facility is necessary to the conduct of research and development work. The general scope of the proposal is justifiable and reasonable. The sponsoring agency has satisfied the conditions of RDB policy for coordination.

ACTION: - The proposal is approved.

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RDB 77/5.7

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22 November 1948

Proposal No. A 40-2, "Cold Weather Torque
Stand for Turbo-Prop Test Cell, Ladd Air
Force Base, Alaska." - \$3,500,000

Sponsor: U. S. Air Force

SUMMARY: - This facility will be constructed of reinforced concrete and consists of a three story central section having an area of 4,600 square feet per floor with a test cell on either side of the central section, each having an area of 5,100 square feet. This facility is required for the extremely large volume of refrigerated air needed to conduct low temperature tests on power plants of the large sizes now contemplated.

FINDINGS: The provisions of RDB 137/1 and RDB 36/2 have been satisfied. Related facilities are located at Eglin Air Force Base, Florida, and consists of a climatic hangar that provides about 130 lbs. of air/sec. at -48°F and about 100 lbs. of air/sec. at -65°F. The proposed Naval Aeronautical Turbine Laboratory will also be a related facility and will provide about 140 lbs. of air/sec. at -45°F. These capacities do not even approximate that which is required for the J-49 engine under development which requires 360 lbs. per/sec. No duplication is evident in similar existing facilities because of their limited consumption capacity. Cold weather testing of the large power plants is considered necessary before the AEBC components test facility will be available and this proposal would permanently augment the capacity of that facility.

ACTION: - The proposal is approved.

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RDB 77/5.8

22 November 1948

Proposal No. A 40-3, "Rocket Firing Station
for Upper Air Soundings, Alaska" - \$1,500,000

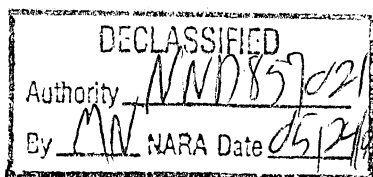
Sponsor: U. S. Air Force

SUMMARY: - The proposal is for a new establishment of a rocket firing station for upper air soundings, to be located in Alaska for the purpose of obtaining atmospheric data in high latitudes, at an estimated cost of \$1,500,000.

FINDINGS: - The Panel on the Upper Atmosphere, Committee on the Geophysical Sciences, of the Board, has urged on various occasions that upper air soundings to high atmospheric levels be made at places other than the White Sands Proving Ground, in order to obtain data in a different latitude and environment (file UAT 30/1.1). The other Services operating other similar facilities state that they are fully occupied at the moment with research for their respective activities and that, in the opinion of the agencies concerned, duplication of the facilities are warranted. Also, none of the localities having existing facilities meet the scientific requirements set forth by the Upper Atmosphere Panel (RDB), since all are at a relatively low latitude. The advantages of a high latitude atmospheric sounding station are obvious; soundings there can be made near the auroral zone and into the polar stratosphere. Very few direct soundings exist above levels of approximately 20 kilometers in these latitudes and many geophysical phenomena of military importance in the polar or sub-polar high atmosphere have been observed by direct means only. Direct observations will greatly enhance current knowledge of upper atmosphere conditions. This facility has been appropriately coordinated with other departments of the National Military Establishment.

ACTION: - The proposal is approved.

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RDB 77/5.9

22 November 1948

Proposal No. A 41-2, "Conversion of Buildings, Griffiss Air Force Base, Rome, N.Y." - \$2,750,000.

Sponsor: U.S. Air Force

SUMMARY: - The proposal covers the conversion of certain buildings at Griffiss Air Force Base to accommodate Watson Laboratory (Red Bank, N.J.) and Cambridge Field Station (Cambridge, Mass.) which are being relocated at Griffiss Air Force Base. Upon consummation of transfer of these activities, the evacuated facilities will be declared excess unless then required for other governmental agencies.

FINDINGS: - The work to be done in the new establishment is that now being done at Watson Laboratory and Cambridge Field Station and is a necessary and important part of the research and development program. The present facilities are sub-standard in relation to the type facility generally provided by the government for such purposes; those at Cambridge Field Station are leased. The proposed location will provide an air space and airfield which can be used primarily for electronics research and development projects. The lack of such space and airfield greatly handicaps research and development operations at present locations. The sponsoring agency has satisfied the conditions of RDE policy for coordination.

ACTION: - The proposal is approved.

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RDB 77/5.10

22 November 1948

Proposal No. A 41-3, "Instrument Landing Test Facility, Griffiss Air Force Base, Rome, N.Y." - Second increment - \$300,000.

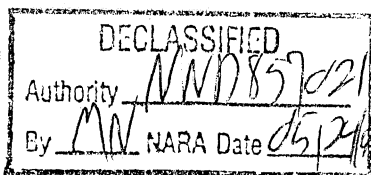
Sponsor: U. S. Air Force

SUMMARY: - The U. S. Air Force proposes to construct at Griffiss AFB, Rome, N.Y., an instrument landing test facility costing \$300,000. This facility will be a field test station for conducting development and engineering tests of integrated airport-area navigation and blind landing systems. As such, it will require the construction of approximately 18 hardstands of 30' diameter, with connecting roadways, power cable, control and communication lines. Several test equipment shelters of 400-500 sq. ft. will be required as will on-base sites for localizer, glide path, and beacons. Related off-base sites for compass locators and marker-beacons will also be needed. The first increment (\$200,000) was approved in RDB 77/3 (6 Dec. 47) (RDB 2/10.6; Item 5 of RDB 3/10, 19 Dec. 47).

FINDINGS: - The U. S. Air Force plans to consolidate its present electronics research and development facilities at Griffiss Air Force Base. This plan is the result of numerous studies which have shown the need for combining the existing facilities at one installation which in turn should be necessarily located adjacent to a suitable airfield. In conjunction with this move to Rome, and in line with the research and development activities which will be carried out there, the Air Force proposes to construct, at Griffiss Air Force Base, an instrument landing test facility (which is the subject of this proposal); this facility is justified. The equipments to be developed in this field must be tested in an integrated fashion under controlled conditions, and no such facilities for this purpose are available for Air Force use.

ACTION: - The proposal is approved.

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RDB 77/5.11

22 November 1948

Proposal No. A 99-3, "Solar Observatory Facility (Upper Air Research Station), Sacramento Peak, Alamogordo, N. M." - \$350,000 (Secnd increment).

SUMMARY: - The proposal is for the construction of a solar observatory facility (recently designated by Hq. USAF as: "Upper Air Research Station") on Sacramento Peak, east of Alamogordo, New Mexico, for the purpose of housing a coronagraph, involving the proposed expenditure of a second increment appropriation requirement (FY 1950) in the amount of \$350,000. The first increment (\$460,000) for this purpose was approved by the Board in RDB 77/4, 18 December 1947 (Amendment to Proposal No. 26, RDB 77/3, 6 Dec. 1947).

FINDINGS: - The only existing similar facility in this country is the joint Harvard University-University of Colorado observatory at Climax, Colorado, which is operated under private auspices. In order to obtain solar corona data which are as complete as possible, it is deemed desirable to have an additional facility for such observatories, particularly in view of certain local difficulties existing at Climax. The present proposal concerns the second increment for construction of this facility. This facility and the contemplated program for it have been appropriately coordinated with other departments of the National Military Establishment and other government agencies.

ACTION: - The proposal is approved.

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NATIONAL MILITARY ESTABLISHMENT
RESEARCH AND DEVELOPMENT BOARD
WASHINGTON 25, D. C.

19 October 1948

MEMORANDUM FOR THE EXECUTIVE SECRETARY, RDB

Subject: Construction of Applied Research Building at Wright-Patterson Air Force Base
Proposal No. A-36-14

- References:
- (a) Memorandum, 3 Sept 1948, re Air Force Research and Development Facilities Program for FY 1950, to Committee on Basic Physical Sciences from Facilities Branch RDB, enclosures (A) and (D) mentioned therein being attachments (d) and (e) listed below.
 - (b) RDB 137/1 Policy Concerning Review of Proposals Involving Research and Development Establishments, Facilities and Supporting Agencies.
 - (c) RDB 36/2 Policy for Support of Actions Presented to the Board.
 - (d) Memorandum, 10 August 1948, re Submission of Air Force Research and Development Facility Program for FY 1950, to Research and Development Board from Director of R&D, Office of Deputy Chief of Staff, Materiel, Air Force.
 - (e) Detailed justification for Applied Research Building, Wright-Patterson AF Base (Proposal No. A-36-14) with attached letters, Army 400.112, 24 June 1948, and Navy 12641, 16 July 1948, offered in evidence of coordination.
1. The subject facility is a proposed building to house the activities of the Applied Research Group (name recently changed to Office of Air Force Research), Air Materiel Command, at Wright-Patterson Air Force Base.
 2. This is a new agency established for the conduct of basic and applied research, for consulting service to all technical offices of the Air Force and for the technical supervision of contracts entered into by the Air Force with universities and research institutes. It is to be developed around a group of nine technical appointees of Grade P-9, statutory provision for whom was provided for in FY-49.

This document contains information affecting the National defense of the United States within the meaning of the Espionage Act, U.S.C. 50; 31 and 32, its transmission or the revelation of its contents in any manner to an unauthorized person is prohibited by law.

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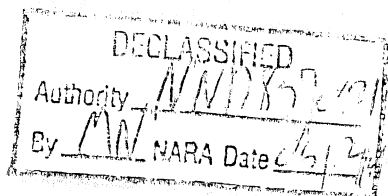
3. The fields of interest of this agency will traverse the basic sciences, including mathematics, fluid mechanics, physics, chemistry, metallurgy, biophysics, geophysics, etc., including also applied mathematics (with computing equipment).
4. This Committee believe that the formation of the Office of Air Force Research meets an urgent military requirement of the Air Force, it being a logical step to provide for effective technical leadership and coordination of basic research and development in that Department.
5. In accordance with the terms of attachments (b) and (c), the members of the Committee have examined the record of coordination with technical agencies of other Departments submitted in attachment (c) and find no evidence that the functions of the Office of Air Force Research could effectively be performed by any existing agency or facility.
6. Accordingly, this Committee recommend to the Research and Development Board the approval of construction of the subject facility.

By direction of the Committee

/s/

Martin Grabau
Executive Director
Committee on Basic Physical Sciences

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THE RESEARCH AND DEVELOPMENT BOARD

C O P Y

COMMITTEE ON MEDICAL SCIENCES

RDB 179/1.1

October 13, 1948

MEMORANDUM TO: Dr. V. Bush, Chairman, Research and Development Board

THROUGH: Dr. L. R. Hafstad, Executive Director

SUBJECT: Importance of medical research within the National Military Establishment as an inducement to medical recruitment -- Comments on.

REFERENCE (a): Dr. Bush's memorandum to Dr. Hafstad dated 3 August 1948 on subject of importance of medical research as an inducement to medical recruitment.

1. The Committee on Medical Sciences at their third meeting considered the request contained in reference (a), and directed the Secretariat to transmit their comments on this subject.

2. Discussion elicited that:

a) The Army Medical Corps is preparing to record MCS numbers on the personnel records of those officers who have shown research ability and who indicate a continuing interest in the field of medical research. It is anticipated that such plans will assure continued assignment in research of this group of officers.

b) In order to encourage properly motivated officers, the U. S. Navy has issued two directives concerning medical research. One directive assures the officer that he will be afforded the opportunity to continue in research. The other directive recognizes medical research as a speciality on the same basis as other medical specialities, and directs medical officers in command of large Naval hospitals to establish a Chief of Clinical Medical Research to work with other chiefs of services so that maximum interest in research will be maintained.

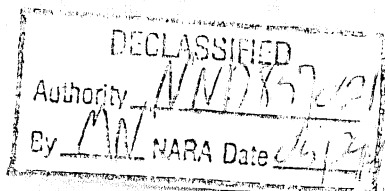
3. The Committee considers the support of a medical research program within the National Military Establishment to be an important factor in making a career in the military services attractive to the physician. The Committee also considers that this program must give promise of being continued through the years to aid or to act as an inducement to medical recruitment.

JFS:mj

cc. Dr. Blako

Attachment (MB 16/1.4

JOSEPH F. SADUSK, JR., M. D.
Executive Director
Committee on Medical Sciences



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R E S T R I C T E D

National Military Establishment
RESEARCH AND DEVELOPMENT BOARD
Committee on Medical Sciences
Washington 25, D. C.

MB 16/1 COVER

Agenda for 3rd Meeting

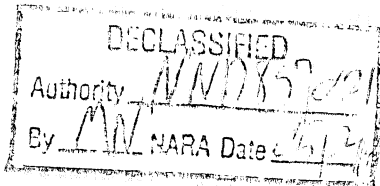
ITEM 7 - Report of Subcommittee on Medical Research of the
Hawley Committee

Attached: MB 16/1 - Report of Subcommittee on Medical Research of the
Hawley Committee (minus annexes)

Attached for consideration in compliance with Dr. Bush's
memorandum MB 16/1.4.

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MB 16/1.4

National Military Establishment
RESEARCH AND DEVELOPMENT BOARD
Washington 25, D.C.

3 August 1948

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MEMORANDUM FOR DR. L. R. HAFSTAD

Subject: Recruitment of Medical Personnel in the Armed Services

I conferred with the Secretary of Defense today on some of the problems concerned with the recruitment of medical personnel in the Armed Services. The Hawley Committee is studying this matter intensely.

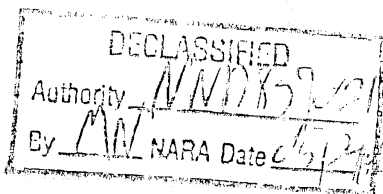
We recently received a report from a subcommittee of the Hawley Committee on the subject of medical research, transmitted to us by the Secretary of Defense for our comments. This report will now be reviewed carefully by our Committee on Medical Science.

The problems of medical research and of medical recruitment are not entirely independent. One of the primary reasons for the conduct of medical research by the Armed Services is undoubtedly that the presence of such research makes medical service with the military departments more attractive to medical men who are ambitious and of an inquiring mind. The relationship here is somewhat of the same nature as the relationship between basic research as carried on by ONR, and military personnel in the Navy, for the influence of one upon the other is salutary.

I have not read the report of the Hawley subcommittee in sufficient detail as yet to know whether this angle of the matter has been thoroughly covered in their studies. However, as we review this report within the organization of RDB I trust that it will receive due attention. Unless the medical research conducted by the Services adds to the attractiveness of a medical career in the Services, then, in my opinion, one of the primary reasons for the conduct of such research has disappeared. I will be exceedingly interested, as I know the Secretary of Defense will be, in the conclusions of our own committee on this aspect of the subject.

s/
W. RUSH
Chairman

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OFFICE OF THE SECRETARY OF DEFENSE
Washington

30 July 1948

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MEMORANDUM FOR THE CHAIRMAN, RESEARCH AND DEVELOPMENT
BOARD

SUBJECT: Report of the Committee on Medical and Hospital
Services of the Armed Forces on Medical
Research of the Armed Forces.

1. Attached hereto is a report from the Committee on
Medical and Hospital Services of the Armed Forces, dated 28
July 1948, on Medical Research of the Armed Forces.

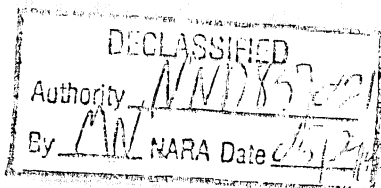
2. The Secretary of Defense will appreciate your
review of this report, and the submission to him, after
coordination with the several departments, of recommenda-
tions concerning the action which he should take with
respect thereto.

s/

John H. Ohly
Special Assistant to the Secretary

Attachment

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OFFICE OF THE SECRETARY OF DEFENSE
Washington

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COMMITTEE ON MEDICAL AND HOSPITAL SERVICES OF THE ARMED FORCES

To: The Secretary of Defense

Subject: Medical Research of the Armed Forces

Reference: (a) Memorandum from Secretary Forrestal to Dr. Paul R. Hawley, dated 1 January 1948, Subject: "Committee on Medical and Hospital Services of the Armed Forces."

Enclosure: (1) (HW) Report of Subcommittee on Medical Research of the Armed Forces.

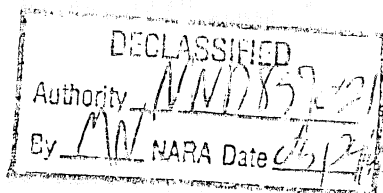
1. By the terms of reference given in Reference (a) you ask that among other things the Committee give attention to the problem of:

"Coordination or consolidation of the medical research programs of the medical services of the Armed Forces and the maximum joint use of research facilities. This should include consideration of the questions of whether there should be a completely joint research program or whether, irrespective of the wisdom of establishing a single Armed Forces medical and hospital service, a common research program should be undertaken by one service on behalf of all Services."

2. In consonance with paragraph 4 of Reference (a), the Committee appointed a Subcommittee on Medical Research of the Armed Forces to assist the Committee in conducting its study of this subject. The report of that Subcommittee is submitted herewith as Enclosure (1).

3. In its consideration of this subject the Committee has taken into account the functions, duties and responsibilities of the Research and Development Board as set forth in Sec. 214 of the National Security Act of 1947. Note has also been taken by the Committee of the establishment by the Research and Development Board of a Committee on the Medical Sciences to assist the Board in the conduct of its functions in that field. Each of the three Departments has two medical officers as representatives in the membership of that recently organized Committee, which is further composed of two civilian members and a civilian chairman. The six medical officers on that Committee are individuals most familiar with the medical research programs and activities of their respective Departments, and constitute a participating membership which is satisfactory to the Surgeons General and to the Air Surgeon. The Charter of that Committee, which was concurred in by the Surgeons General and the Air Surgeon,

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contains terms of reference which have an important and direct bearing on the recommendations of the Committee on Medical and Hospital Services of the Armed Forces. The aforementioned charter includes the following obligations, quoted in part only (see Annex C of Enclosure (1) for the full text):

"Section b: 'Analyze and evaluate . . . information in order to:

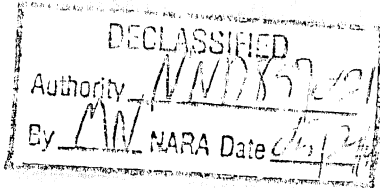
- '(1) Determine the major goals and problems in the field of medical and allied sciences and direct appropriate and constant emphasis upon them;
- '(2) Assess the adequacy of plans . . .
- '(3) Determine the presence of unjustifiable duplication . . .
- '(4) Determine the presence of serious gaps which exist in the programs;
- '(5) Assess the adequacy of facilities, personnel and equipment . . .
- '(6) Appraise the degree of coordination . . .'

"Section d:

- '(1) Prepare not less frequently than once a year an integrated plan . . .
- '(2) Allocate and, when desirable, reallocate responsibility among the military departments for research . . .
- '(3) Specify means whereby maximum advantage may be taken of critical resources and new advances, solution of problems may be speeded, undesirable duplication, waste or neglect may be avoided, and liaison, cooperation and direct dealing among agencies may be furthered;
- '(4) Present to the Board . . . recommendations for expenditures . . .'"

4. It is thus seen that the National Military Establishment now has, within the organizational structure of the legally established Research and Development Board, the appropriate mechanism for effecting coordination, avoiding undesirable duplications, and providing broad guidance in the field of Medical Research in the Armed Forces.

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5. The Committee on Medical and Hospital Services of the Armed Forces is in accord with the report of its Subcommittee on Medical Research. The Committee believes that implementation of the recommendations contained therein would not conflict with the functions of the Research and Development Board or with the terms of reference given by the Board to its Committee on the Medical Sciences, which review and make determinations on these matters at the level of the Office of the Secretary of Defense. On the contrary, the Committee believes that effectuation of these recommendations will further the commendable objectives of the Research and Development Board in the field of the Medical Sciences as outlined in paragraph 3 above, will serve to complement the work of that Board, and will facilitate the origination, development and pursuit, within the level of the Departments, of appropriate and coordinated Medical Research projects and undertakings which will subsequently be subject to scrutiny and review by the Research and Development Board and its Committee on Medical Sciences. The aforementioned recommendations are:

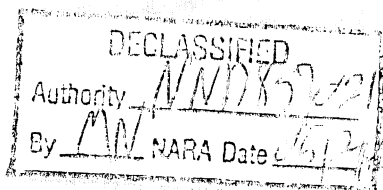
(A) That the present management-control of the separate medical research activities maintained by the three Services be not disturbed.

(B) That the Chiefs of Medical Research Divisions of the three Departments meet at regular intervals, on call of the senior Chief, and not less frequently than once a month, to:

- (1) Discuss with one another all new research project proposals received since the previous meeting, in order to
 - (a) In the case of projects for accomplishment in service facilities, determine
 - i. Which service facility is best equipped to undertake the project, and
 - ii. What assistance or cooperation, either by personnel or research tools should be furnished by facilities of the other armed Forces, but
 - iii. The right of any of the three research chiefs to undertake a project independently shall not be designed by the above reviews.
 - (b) In the case of projects for accomplishment by contract in civilian institutions, decide which projects should be undertaken in joint sponsorship and support.

(C) That where joint support of research projects is agreed upon, the service which is primarily interested, or which is the initial sponsor of a particular project, will cause the contract to be negotiated through its regularly designated channels, and will bill the contributing services for their agreed portion of the cost, on a Standard Form 1080 to effect

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(C) -- continued

reimbursement. The contracting agency will then also act as the legal agent in this particular project, will keep records as to the obligation and expenditure of said project funds, and will be responsible for all reports.

(D) That the Research and Development Board of the National Military Establishment be asked to study contract methods and procedures in the Medical Services of the Armed Forces with a view toward promoting:

- (1) Uniformity,
- (2) Standardization of overhead charges, and
- (3) Extension of period of availability of appropriated funds.

(E) That, giving practical consideration to the limitations imposed by command and administrative aspects and responsibilities, particularly in the fields of bacteriological and radiological warfare, all research in the fields of medicine or medical allied sciences should be conducted under the technical supervision of the Surgeon General (or Air Surgeon) concerned.

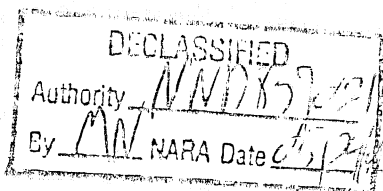
(F) That the novel, unique or unusual research facilities of one Service be utilized by all of the Services, when desirable, after appropriate and mutually satisfactory arrangements are effected.

(G) That greater consideration be given to the pooling of research resources into jointly conducted projects where common and mutual concern exists and where the specialized nature of facilities or personnel suggest this action.

(H) That medical material development be undertaken as a jointly controlled, staffed, and financed activity, centered in an Armed Forces Engineering Development Laboratory (Annex D).

6. In connection with recommendation (H) above, attention is invited to the fact that, as more fully discussed in Annex D of Enclosure 1, its approval will result in reorganization and redesignation of the Engineering Development Division of the Army-Navy Medical Procurement Office (ANMPO), together with its Engineering Laboratory and Shop which is located at Fort Totten, New York, as the "Armed Forces Medical Materiel Engineering and Development Laboratory." Further, that it will, through the medium of the Surgeons General and the Air Surgeon and a governing board having appropriate representation from each of the three medical Services, place that reorganized and redesignated agency which has to do with development in the field of Medical Materiel, more appropriately in closer contact with and more directly under the policy guidance of the Research and Development Board than by continuing its present relationship as a subsidiary of the Army-Navy Medical Procurement Office.

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7. After the Secretary of Defense has obtained such concurrence and/or comments from the Research and Development Board, the three Departments and/or such other elements of the National Military Establishment as he may deem necessary or desirable, approval of the recommendations as set forth in paragraph 5 above is unanimously recommended.

8. This special interim report constitutes an increment of the Committee's report to you on its overall assignment.

s/ PAUL R. HAWLEY, M. D.
Chairman, Committee on Medical and
Hospital Services of the Armed Forces

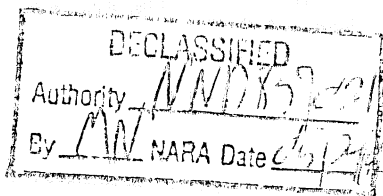
s/ RAYMOND W. BLISS
Major General, MC, USA
The Surgeon General

s/ CLIFFORD A. SWANSON
Rear Admiral (MC), U.S.N.
Surgeon General

s/ J. F. BOONE
Rear Admiral (MC) U. S. Navy
Executive Secretary

s/ MALCOLM C. GROW
Major General, MC, USA
The Air Surgeon

R E S T R I C T E D



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9 June 1948

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To: The Executive Secretary,
Committee on Medical and Hospital Services
of the Armed Forces.

Subj: Report of Subcommittee on Medical Research,
forwarding of.

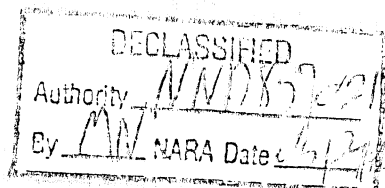
1. Submitted herewith, in quadruplicate, is the report of the Subcommittee on Medical Research, together with descriptive and documentary annexes.
2. Incident to the detachment of Captain Eric G. Hakonsson (MC) USN, substitution of the writer as chairman of the Subcommittee entailed a certain unavoidable delay for indoctrination and familiarization. The patience and good nature exhibited in this connection by Colonel Don Longfellow, representing the Army, and Colonel Otis Benson, representing the Air Force, merit grateful admiration.
3. All three members concur fully in the content of this report.
4. Attention is invited to the confidential classification of Annexes "G" and "K".

s/

W. DANA
Captain (MC) USN
Chairman, Subcommittee on
Medical Research

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REPORT OF THE SUBCOMMITTEE ON MEDICAL RESEARCH OF THE
COMMITTEE ON MEDICAL AND HOSPITAL SERVICES OF THE ARMED FORCES

I

INTRODUCTION

The Subcommittee on Medical Research was appointed on 14 January 1948, by the Committee on Medical and Hospital Services of the Armed Forces (Annex A). The membership of this Subcommittee was:

Captain Eric G. Hakansson, MC, U. S. NAVY (Chairman)
Colonel Don Longfellow, MC, U. S. ARMY
Colonel Otis C. Benson, Jr., MC, U. S. Army (Air Force)

On 9 April 1948, Captain Hakansson, due to considerations of personal health, was relieved, and Captain Winfred Dana, MC, U. S. Navy, was appointed the U. S. Navy member and assumed the chairmanship (Annex A1). The Subcommittee assembled on 21 January, 29 January, 3 February, 11 February, 17 February, 26 February, 4 March, 25 March, 30 March, 6 April, 13 April, 20 April, 27 April, 11 May, 14 May, 25 May, and 1 June 1948. An earnest and continued effort was made to become acquainted with the organizational set-up, policies, facilities, overall resources, programs and problems of the research and development agencies in each of the Armed Forces Medical Services. It was necessary to discuss research agencies in the government, particularly in the Armed Forces, which worked in the general medical field but which did not come under the technical supervision of the Surgeons General and Air Surgeon. Certain aspects of bacteriological and radiological warfare were considered from a medical research point of view, although these subjects do not officially concern medical responsibility. One meeting was held jointly with the Subcommittee studying and reporting upon the Army Institute of Pathology. In all, this Subcommittee was mindful of the desires of the Secretary of Defense and those of the Committee on Medical and Hospital Services throughout the deliberations, in the writing of this report, and in formulating its recommendations.

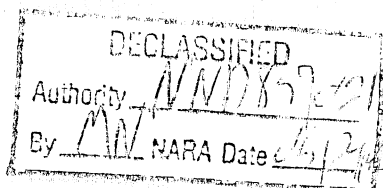
II

THE REPORT

A. A BRIEF HISTORY OF COOPERATION, COORDINATION AND INTEGRATION IN THIS FIELD BETWEEN THE ARMED FORCES, AND/OR RELATIONS TO OTHER GOVERNMENTAL OR PRIVATE AGENCIES.

Prior to World War II there was no extensively supported and adequately funded medical research program in the Armed Forces. Creditable research was done by many individual medical officers in their routine assignment,

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and a few small research units were in existence. There was limited endeavor in the fields of clinical, preventive, aviation, submarine, and field medicine of applied rather than basic character, generally.

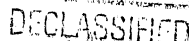
With the approach of war it became apparent that the services must have research facilities of their own in order to deal effectively with the increasing number of medical, psychological, physiological, and related problems of warfare in the field, at sea, and in the air. This challenge was met by establishing research facilities which specialized in the various areas of military medicine. Accomplished in the rush of emergency, without thorough study or overall tri-service planning, the staffs of these facilities contributed significantly to the successful prosecution of the war.

In the meantime, OSRD, through its Committee on Medicine, and the National Research Council, had marshalled the country's resources for medical research and, through contractual procedure, channelled civilian research into problems related to the war effort. The coordination of this all out research effort was centered in the Committee on Medicine and its Subcommittees, the latter functioning within the framework of the National Research Council. The heads of medical research in the Army and Navy were members of the OSRD Committee on Medicine. Liaison officers from the three services represented the Surgeons General and the Air Surgeon at meetings of the Subcommittees. This arrangement proved an effective means of keeping civilian scientists informed of the problems in the Armed Forces, and of assistance needed. It likewise served to prevent undue duplication of effort in military and civilian research. Contributory to this coordination endeavor was a complete and expeditious exchange of project formulations on project reports of research underway.

When OSRD was terminated in 1946, the National Research Council offered to continue its advisory function for the Armed Services, through its Medical Sciences Committee, and other committees for various fields of research. This offer was accepted by the Surgeons General, and necessary monies were allocated from Army and Navy medical research funds. Appropriate committees, with outstanding medical men and investigators, were established and have proved useful. Most of these committees continue to exist.

The Joint Research and Development Board, under the chairmanship of Dr. Vannevar Bush, was established on 6 June 1946, by the Secretaries of the Army and Navy, acting conjointly. With the creation of the Research and Development Board, as part of the National Defense Establishment, on 26 July 1947, an organization was set up by Federal law for the specific purpose of coordinating research and development in the Armed Forces (Annex B). To carry out its function, RDB established committees in various fields. One of these, currently completing its organization, is the Committee on The Medical Sciences. Like other RDB committees, the membership has representation from each of the Armed Services, as well as from civil life, and the Chairman is a civilian. Its "charter" has been approved by the Surgeons General and the Air Surgeon and by the RDB. These terms of reference have an important and direct bearing on the recommendations of this committee, and include the following obligations, quoted in part only (for the full text, see Annex C):

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Authority

By WV NARA Date

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of the Armed Forces of "medical" research organizations with a number of component research facilities. The initiation and growth of these activities is identified as having occurred in response to medico-military problems arising in contiguous military agencies. In most instances, the military necessity for close service identification of the research activity would appear still to exist, but there are several considerations that should be reviewed and re-evaluated. One of these considerations is the question of the Armed Forces supporting, at this time, research and development in the field of prosthetic devices for amputees. Two factors enter into the considerations, which are: (1) amputees are normally discharged from the Military Services as soon as maximum benefit from hospitalization has been attained, and (2) the Veterans Administration, working with the National Research Council, has an extensive research and development program in progress in this area. It is thought that original and ingenious ideas should be encouraged in the Armed Forces medical installations among the medical personnel, and such ideas should be carried along to a reasonably conclusive stage. However, it should be recognized that the Veterans Administration has the final and major role in the development of prosthetic devices for amputees having service-incurred disabilities.

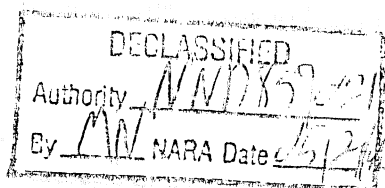
The question of the proposed extension of the Army Institute of Pathology into greater research activities was considered by this Subcommittee. In this connection, a joint meeting of the two Subcommittees was held on 13 April 1948. The results of this meeting and the conclusions of the Medical Research Subcommittee are covered in the report of the Subcommittee of the Army Institute of Pathology. It is apparent that the research work of the Institute should fully come into the purview of the Research and Development Board.

The questions of Bacteriological and Radiological Warfare were discussed, to a limited extent, by this Subcommittee. The discussions centered about the role of the Armed Forces Medical Services in the defensive aspects of warfare of these types. In view of the command and administrative aspects, with responsibility vested in other military or governmental (other than Medical Services) agencies, it was concluded that these subjects were not properly matters to be entertained. However, the consensus was that the Medical Services should have a dominant role in the medical defensive aspects, and should have research programs directed to support such a role.

Much time has been devoted to the discussion of "medical developments." It has become evident that each medical service fosters research and development activities directed toward improving medical materiel. It is equally evident that many of the items being developed have common service usage, and that both very close liaison and joint control of the development program are to be desired. A study panel was appointed to investigate and describe these medical materiel activities, and its report is appended as Annex D.

Each Medical Service has research and development directorship centralized in the offices of the Surgeons General and Air Surgeon, and with outlying research facilities. In summarized form the scope, facilities, programs and other pertinent data are presented for each Service:

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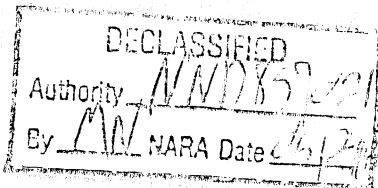
(1) For the U. S. Army:

The Medical Research and Development Board, functioning under the Surgeon General, is charged with supervision, both of contractual research, and that conducted in installations under the control of the Surgeon General.

Annex E contains:

- (E1) The mission and membership of the Board.
- (E2) Civilian research facilities where medical research is conducted under contract with the Army, including a discussion of Army procedure for the letting of contracts.
- (E3) Table of SGO contracts showing place, investigator, subject and current cost on annual basis.
- (E4) SGO contracts according to universities, hospitals, etc.
- (E5) Form of application for consideration of research project (E5a), accompanying biography form for investigator (E5b), and sample contract form (E5c).
- (E6) Principles for determination of costs under government research and development contracts with educational institutions.
- (E7) Research and development contracts and transfer agreements.
- (E8) Detailed description of Army Prosthetics Research Laboratory, including personnel, cost of operation and facility value.
- (E9) Detailed description of Army Medical Department Research and Graduate School, including personnel, cost of operation, and facility value.
- (E10) Detailed description of Ocular Injury Research Unit, Walter Reed General Hospital, including personnel and cost of operation.
- (E11) Detailed description of the Medical Nutrition Laboratory, including personnel and cost of operation.
- (E12) Detailed description of the Medical Department Field Research Laboratory, including personnel, cost of operation and facility value.
- (E13) Detailed description of Surgical Research Unit, Brooke General Hospital, including personnel and cost of operation.

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- (E14) Tuberculosis Nutrition and Metabolic Research Unit, Fitzsimmons General Hospital, including personnel and cost of operation.
- (E15) Tuberculosis Research Laboratory, Fitzsimmons General Hospital.
- (E16) Miscellaneous research and development projects in various medical department installations.

(2) For the U. S. Navy:

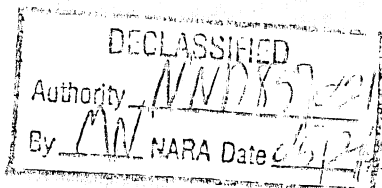
The Navy's medical research program is shared administratively by (a) the Medical Sciences Division, Office of Naval Research, which functions as the contracting agency for research conducted in civilian institutions and maintains close working contact with its contractors, through strategically located regional offices: and (b) the Research Division, Bureau of Medicine and Surgery, which supervises specifically all research activity in facilities under the management-control of the Bureau of Medicine and Surgery, and, by consent, such research in medical and allied sciences as is carried on by medical department personnel working in activities under the management-control of other Bureaus or in the fleet.

Pertinent information bearing on the operations of the Medical Sciences Division, Office of Naval Research, is detailed in Annex F as follows:

- (F1) Descriptive outline of Medical Sciences Division, ONR, including authority, organization and budget, FY 1948.
- (F2) Directive and legislation.
- (F3) Objective and mission.
- (F4) Organization chart.
- (F5) Parent programs.
- (F6) 1948 funds.
- (F7) Coordination.
- (F8) Relation to submarine problems.
- (F9) Relation to Bureau of Aeronautics problems.
- (F10) List of contracts.
- (F11) Dental program.

The activities of the Navy, devoted in whole or in part to medical and allied research under the supervision of the Research Division, Bureau

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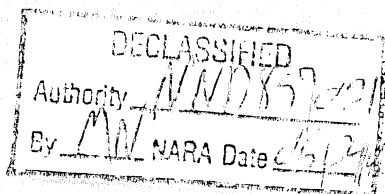
of Medicine and Surgery, are described in Annex 6 as follows:

- (G1) Research Division - chart of organization.
- (G2) Naval Medical Research Institute, including personnel, cost of operation and facility value.
- (G3) Naval Medical Research Institute - chart of Organization
- (G4) Naval Medical Research Laboratory, Submarine Base, New London, Conn., including personnel, cost of operation and facility value.
- (G5) Naval Medical Research Unit No. 1, University of California, including personnel, cost of operation and facility value.
- (G6) Naval Medical Research Unit No. 3, Cairo, Egypt, including personnel, cost of operation and facility value.
- (G7) Naval Medical Research Unit No. 4, Dublin, Ga., including personnel, cost of operation and facility value.
- (G8) U. S. Naval School of Aviation Medicine and Research, Pensacola, Florida, including personnel, cost of operation and facility value.
- (G9) Naval Medical Field Research Laboratory, Camp Lejeune, N.C., including personnel, cost of operation and facility value.
- (G10) Radiation Laboratory, San Francisco Naval Shipyard.
- (G11) Aeronautical Medical Equipment Laboratory, Naval Base, Philadelphia, Pennsylvania.
- (G12) Physiological Test Section, Service Test Division, Naval Air Station, Patuxent River, Maryland.
- (G13) U. S. Naval Unit, Biological Division, Chemical Corps, Camp Detrick, Maryland.
- (G14) List of projects.

(3) For the U. S. Air Force:

Medical Research and Development in the Air Force is under the technical supervision of the Air Surgeon. In addition, he exercises broad supervision over the psychology program insofar as it pertains to research. The immediate responsibility is vested in the Medical Research Division of his office, which maintains a close working relationship with the Air Force Directorate of Research. The facilities, funds, research program, projects, etc., are summarized as follows:

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Annex H contains:

- (H1) U. S. Air Force research organization.
 - (H2) Office of Air Surgeon - Medical Research Division organization.
 - (H3) Research facilities: Aero Medical Laboratory, School of Aviation Medicine, Arctic Aeromedical Laboratory, Psychology Unit - Training Command, Psychology Unit - Strategic Air Command.
 - (H4) Budget.
 - (H5) Research projects, intrinsic.
 - (H6) Research projects, contract.
- (4) For all Three Armed Services:

A single joint facility within the services, of specific concern to this Subcommittee, is the Engineering Development Division, Army-Navy Medical Procurement Office, Fort Totten, New York, described in Annex I.

- (5) Medical or "Related" Research and Development activities in the Army Not Under Medical Sponsorship or Supervision:

Certain research in one or more of the basic medical sciences is conducted in Army facilities not under the control of the Surgeon General. In this connection, reference is made to the following installations.

Annex J contains:

Medical Division, Army Chemical Center, Edgewood, Maryland.
Climatic Research Laboratory, Lawrence, Massachusetts.
Quartermaster Food and Container Institute for the Armed Forces, Chicago, Illinois.

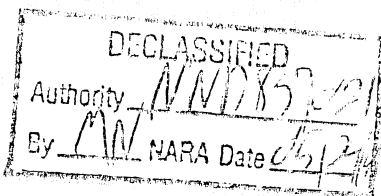
C. A DETAILED STATEMENT AS TO MISSIONS, RESPONSIBILITIES, POLICIES, AND OPERATING PROBLEMS OF EACH OF THE ARMED FORCES IN THIS FIELD.

- (1) U. S. Army:

(a) Mission:

(1) The mission of the Army Medical Research and Development Board is to implement the Medical Department's responsibility to the Army: namely, the selection of manpower, the maintenance of health, the improvement of treatment for sick and wounded, and the return of disabled manpower to health and duty. This mission incorporates the following aspects:

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- a. Anticipation of the national military requirements.
- b. Establishment of a master program to adequately cover these requirements.
- c. Encouragement of the conduct of research within U. S. Army Medical Department installations along the lines indicated by the master program.
- d. Filling in "gaps" in the master program by making contractual research in universities and similar institutions.

(b) Responsibilities:

(1) The Medical Research and Development Board of the Surgeon General, U. S. Army, has the following responsibilities:

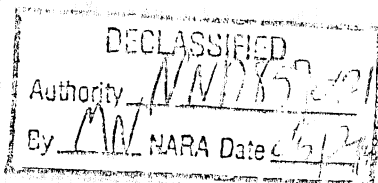
- a. Evaluation, with the assistance of the Division of Medical Sciences of the National Research Council, of all research proposals submitted to it.
- b. Administration and supervision of the progress of these research and development contracts to their termination.
- c. Coordination of all research and development work done within medical facilities to prevent undesirable duplication, and secure maximum probability of successful completion.
- d. Assignment of priorities to all projects, both contractual and intra-service; and obligation of funds in accordance with these established priorities.
- e. Provision of funds, supplies, equipment and facilities to promote research within the Medical Department.
- f. Adequately staffing its research facilities with competent scientific and administrative personnel.
- g. Dissemination of the results of all investigations effected.

(c) Operating Problems:

(1) Inadequacy of appropriated funds. A total of 5.8 million dollars to support the research and development program of the U. S. Army Medical Department was estimated as required for the Fiscal Year 1949 (Annex K). Because of limitations imposed, that requests for funds could not exceed the amounts appropriated for Fiscal Year 1948, the Board was forced to reduce its estimates downward to 3.1 million dollars.

(2) Unfavorable pay scale for Civil Service employees has definitely limited the procurement of qualified scientific personnel, since the pay authorized is not able to compete with industry and larger universities.

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(d) Operating Policies:

(1) The research program of the Army is based on an extensive study of manpower losses which occurred in World War II, and losses which may be anticipated in any war of the future. The program is shown in detail in Annex L. In general, the policy of the Board is to encourage basic and allied research and development in all fields of medicine, surgery and basic sciences which show promise of:

- a. Increasing the efficiency of the Army both offensively and defensively.
- b. Facilitating the operation of the medical services in support of combat operations.
- c. Protecting the civilian population from disease or injuries occurring as a result of enemy armed action, i.e., from famine, epidemic, or atomic explosion.

(2) U. S. Navy:

The mission of the Research Division of the Bureau of Medicine and Surgery is to facilitate the performance of research by the Medical Department, U. S. Navy, and to promote and conduct scientific medical research directly or indirectly applicable to the operational problems of the Navy.

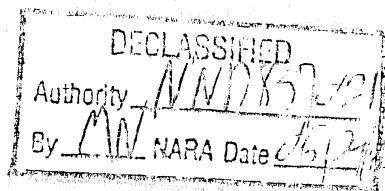
The problems of fleet operations present needs for medical research along specialized lines not duplicated elsewhere. For example, aboard Navy vessels there are distinct problems in the way of industrial hazards; problems of habitability, of ventilation, of overcrowding, of nutrition, and of disease-spread. Similarly, atomic blast and atomic radiation present unique problems to forces afloat.

Submarine medicine, in particular, presents its highly specialized technical problems, such as snorkelling, physiological adjustments to escape, and peculiar physiologic and psychologic problems relating to habitability and job efficiency.

Naval aviation presents problems, which, though overlapping in many instances with those of the Air Force, nevertheless retain unique aspects. Operations of carrier aircraft are outstanding in this regard. Marine Corps amphibious operations, likewise, present specialized medical problems of primary Naval responsibility.

To accomplish its mission, the Research Division is responsible for the effective and efficient administration of Naval Medical Research. The Division originates research which has promise of increasing the efficiency of the Navy both offensively and defensively; initiates research in response to requests from other Bureaus, and agencies within the department which desire the medical aspects of their particular problems investigated; and coordinates medical research between the various research activities under the management-control of the Bureau of Medicine and Surgery, to promote better understanding of problems, prevent undesirable duplication of effort, and secure maximum probability of successful completion.

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In general, the Research Division engages in basic or fundamental research, applied research, and early or preliminary development, with its concomitant testing, so long as the required investigations deal with problems in the field of medicine and allied sciences. In general, the Research Division will not engage in testing at the development stage for outside agencies or industries, unless unique opportunity or urgent Naval need make it desirable. Materiel development is the responsibility of the Materiel Division in the Bureau of Medicine and Surgery, and is pursued by the Engineering Development Division, Army-Navy Medical Procurement Office.

Practical projection of the mission and policies enunciated requires:

- (1) The evaluation of projects in terms of apparent Naval need and practicability of successful completion.
- (2) Provision of suitable research facilities and research tools.
- (3) Staffing of research facilities with competent scientific personnel.
- (4) Dissemination of results of investigations.

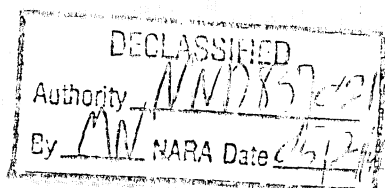
Projects supported will, in general, fall into three groups:

- (1) Studies in the field of medical and allied sciences of clearly defined Naval importance and having immediate applicability to urgent needs of the Navy.
- (2) Projects of a basic or fundamental nature, in medical and allied sciences, in which the element of immediate Naval applicability is remote or absent. This group will contain research proposals which promise to broaden scientific horizons and eventually to permit new approaches to the solution of problems included in group (1).
- (3) Projects without apparent immediate or eventual Naval applicability in which, however, exists the factor of unique opportunity. Unique opportunity, as used here, is defined in its broadest sense. It may be merely a new idea or new approach of high promise for exceedingly important scientific advance; it may be the possession of special instrumentation, or new techniques, or of specially qualified or interested personnel; or the opportunity may be unique as regards time and place. An important element, however, is that the opportunity is not one which might be equally or better utilized for the performance of research in groups (1) or (2).

It is recognized that from a long range viewpoint, group (2) projects, and possibly those of group (3), are more apt to produce the more fundamental and more important scientific advances. Consequently,

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while primary consideration must be given group (1) projects at Naval Medical research facilities, considerable emphasis will be placed on projects which fall within groups (2) and (3) when hostilities are considered less imminent.

Project priorities will be set within group (1) according to:

- (1) Degree of immediate Naval need in support of forces afloat, and urgency of that Naval need.
- (2) Degree of promise.
- (3) Lack of adequate coverage by other groups working on the problem, or lack of emphasis as regards Naval applicability.

Priorities within groups (2) and (3) will be determined largely by the degree of promise and lack of emphasis on the part of other research workers.

(3) U. S. Air Force:

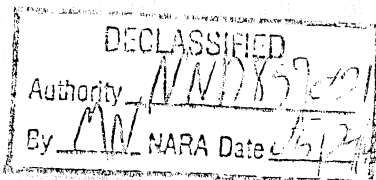
(a) Mission:

All research and development work in the "Medical" area in the Air Force is focused on the human factor in military aviation. The Air Force psychology program is under the broad supervision of the Air Surgeon, as well as the aeromedical research and development program. The investigations initiated and carried out in Air Force aeromedical laboratories, or by contract with universities, stem from problems related to flying or to personnel who are associated closely with flying activities. Stated somewhat as a slogan, one might say the mission of Air Force aviation medicine is to enhance the tactical efficiency, safety, morale and general welfare of fliers and allied personnel. Team work in research and development with engineers and medical allied scientists has been sought and accomplished in the solution of many problems in this field. When the problems become those of clinical medicine research, support is expected of the Surgeon General of the Army and other agencies active in such studies. Close liaison and cooperative effort has been attained with Naval Aviation by means of the Aeronautical Board and personal contacts.

(b) Authority and Responsibilities:

Air Force Regulation 20-1, dated 15 September 1946, places the responsibility on the Air Surgeon of technically supervising the Aeromedical Research program. "The Air Surgeon will...direct the aeromedical research and altitude training programs and supervise air evacuation..." Air Force Regulation 20-59, dated 13 August 1946, places the Air Force psychology research program under the administration of the Air Surgeon, with the Director of this program charged with technical supervision of all psychology research. By the direction of the Director of Research, Deputy Chief of Air Staff-Materiel, Directorate of Research and Development, the Air Surgeon has been delegated the responsibility of monitoring and administering membership and the other activities of the Committee

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fully in the "Steelman Board" report, and is considered not germane to this presentation.

It is thought that greater recognition of the "Human Problems" in the military establishments by its leadership should be attained. With recognition of the problems, there would most certainly follow a greater emphasis on investigations of the human factor in military environments, resulting logically in greater tactical efficiency and morale enhancement. It is unfortunate that assessments of motivation, fatigue, and other complex human reactions are not now capable of quantitative measurement, but the difficulties involved should increase the challenge to capable investigators.

A problem to be mentioned is the one involving the existence of numerous Committees, Boards, and other regulating agencies in research. Much time and money is expended attending the many meetings. In this connection, the Aeronautical Board and Air Force Technical Committee are called to attention, in view of the existence of the Research and Development Board. The U.S.A.F. Technical Committee and the Aeronautical Board have aeromedical subcommittees, and both had their origin before the Research and Development Board was established by law. It would appear that the function of these older agencies, as related to medical research, should be reviewed and the requirements for their continued existence be both questioned and determined.

D. COST OF CURRENT PROGRAM IN TERMS OF PERSONNEL, FACILITIES AND MONEY
(For Detailed Information by Installation see Annexes E, F, G, and H).

Department	No. of Facilities	Total Personnel			Cost of Operation*	Total Value Research Contracts
		Off.	EM	Civ.		
a. Army	9	116	84	273	\$2,261,235	\$1,379,950
b. Navy (BuMed)	8	87	185	195 ²	2,069,174	900,321
c. Navy (ONR) (Med.Sci.Div.)	-	2	0	17	1,604,675	1,604,675
. Air Force	5	123 ¹	289 ¹	196 ¹	1,397,000	300,000 (approx.)
. Totals	22	328	558	681	\$7,332,084	\$4,184,946

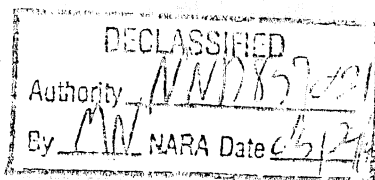
*Includes military salaries, except in the case of the Air Force and ONR.

¹Does not include personnel for Air Training Command and Strategic Air Command, as they are not paid from R&D Funds.

²Includes 26 part-time employees at NAMRU #1, and 50 Egyptians at NAMRU #3, Cairo.

E. A DETAILED STATEMENT OF THE ADVANTAGES AND/OR DISADVANTAGES WHICH WOULD RESULT FROM FURTHER INTEGRATION IN THIS FIELD.

The Subcommittee has considered earnestly the mission, problems and responsibilities of the Research organization in each of the Medical Services.



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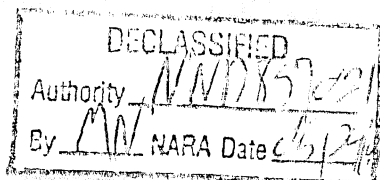
The history of each research division, while not of long duration, bespeaks of the setting up and growth of medical research in the Armed Forces in response to a demand for diversified and yet specific knowledge, for background research or technical evaluation, and for developments required in the operation of the Medical Services. In most instances, the problems requiring investigation or development stem from circumstances peculiar to naval warfare, air operations or military campaigns. It is interesting to note in this connection that the President's Scientific Research Board reports: "It is clear from the preceding discussion that each department or agency of the Government must organize its research and development activities in the light of circumstances peculiar to that department."¹ It is obvious that this Board recognized, throughout the Government, the existence of research and development organizations, and appreciated that their genesis occurred as a result of and the necessity for solutions to problems peculiar to the functions of that particular department, bureau or agency of the Government.

There are numerous by-products of research, and one emphasized in these discussions is the development of greater intellectual capacity and technical competency in the professional life of the Medical and Allied Science officers of the Services. Research facilities must be available to train these men in scientific ideology and methodology, and to permit them an expression of their ingenuity and creativeness.

The director of research and development in each of the Medical Services has a very small staff. In all instances, the director and each of his staff subordinates, assume multifold duties, such as consultant to the Surgeon General or Air Surgeon, consultant to numbers of offices of his respective department, membership on many Boards, Committees and Panels, and is required to represent his superior at many conferences and related gatherings. This is to say that if the directors of research and their relatively few staff associates were to become merged or pooled into a central or tri-department research directorship, there would have to be essentially a complete numerical replacement in the medical offices they vacated. In view of the current shortage of medical officers and Medical Allied officers, the husbanding of professional personnel resources must be meticulously followed.

The Subcommittee is in complete agreement with the President's Scientific Research Board's statement: "The Federal Government should continue its sound policy of utilizing outside scientific advisers. It must, however, resist any tendency to create medical research monopolies."² This consideration in the report was concerned with the concentration of medical research funds in the larger civilian institutions, particularly in the Eastern part of the Nation. The participants in this report have, likewise, considered that research gargantuan offer little in the promotion

1. Science and Public Policy, Page 84, Vol. 3, 4 October 1947.
2. Science and Public Policy, Page 116, Vol. 5, 18 October 1947



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of well planned and executed research programs in the Armed Forces. A large central organization, set up to direct military medical research, would have to become compartmented or departmentalized into a rather large number of divisions, to cover all of the aspects of military medical problems, such as shipboard medicine, submarine medicine, carrier aviation medicine, medical problems of high altitude strategic air operations, Arctic land campaigns, tropical ventilation requirements in ships, specialized psychological and physical standards in relation to operation of the complex modern weapons of war, which differ from one Armed Service to another. Perhaps the best and the most divergent examples have not been cited, but the innumerable divisions of a top-level research directorship might well become more difficult to "coordinate" than the three existing research directorships, and this central office would most certainly be seriously handicapped by "remoteness" from the source of service problems and the actual working research laboratories.

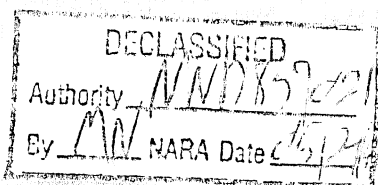
It is the consensus that all laboratories in the military departments, working primarily and principally in the field of the Medical Sciences, should come under technical medical supervision. The focal point of this objective and the example selected to cite is the Climatic Research Laboratory (Lawrence, Mass.) of the Quartermaster Corps, U. S. Army. The Steelman Board, an impartial source of information, reports that this laboratory studies environment and human responses to environment. This same report states that thirty per cent of the overall Quartermaster research and development program falls within medical and allied sciences.¹

The terms of contractual procedure have been discussed and it has been concluded that there is great variation between the departments in the actual terms of research contracts. The item of "overhead" alone is subject to an allowance of from 10 per cent to almost 100 per cent of the stated cost of performing the technical aspects of the work. The Subcommittee believes this is a proper subject for reference to the Research and Development Board, to insure consideration of the terms of contractual research and development work sponsored by the three departments. The monies spent in the medical sciences are but a small percentage of the Federal total in "contract research." It is suggested that the Research and Development Board be asked to maintain a file of "contractors," partly to insure that overlapping segments of a research project are not "sold" several times over to various Federal agencies.

The Subcommittee also believes the Research and Development Board might study and advise upon the question of establishing legality to expend research and development funds appropriated in any fiscal year over a period of up to five succeeding fiscal years. Effective and profitably enduring programs would thus be better assured.

1. Science and Public Policy, Page 96, Vol. 5, 18 October 1947.

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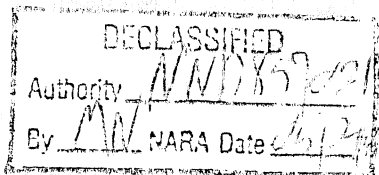
The conferees have discussed the advisability of an annual conference of the three Directors of Research and the Director, Division of Medical Sciences, Office of Naval Research, to acquaint one another with their respective research and development programs at the time of preparation of the annual budget estimates, to be followed by monthly meetings of the same group for consideration of joint interest in specific project proposals. It is conceived that obvious overlapping and unwarranted duplication of effort would become apparent at these meetings, and that corrective action would be taken. It is further thought that a real hiatus in the overall medical research effort of the Armed Forces might then become apparent, and one Service agree to augment its effort to fill the gap.

The question of conducting "joint" researches on certain problems has come up for discussion, with general agreement that there will be problems which should be attacked by a combined effort. Joint staffing of a talented research team to investigate a subject, or the joint use of an unusual facility possessed by one Service, might prove profitable. In this latter connection, the Subcommittee believes that all of the Services should be encouraged to use novel or unusual research facilities of the others, if and when desirable to further their research efforts, provided no interruptions of utilization are caused the "owners."

It is thought that the Research and Development Board, as constituted, with at least two committees considering the "human factor" in the military establishment and in military operations will, by law and by desire, coordinate and integrate the medical research programs of the three Medical Services. Without further elaboration of the functions of the Research and Development Board, reference is again made to the law establishing this Board, Annex B, and to the "charter" of the Committee of The Medical Sciences of this Board, Annex C.

In fields of endeavor, where there is an overlapping of interest, and where some of the problems are common to two or more of the Department Medical Services, there is existent fairly comprehensive liaison and coordinating agencies. Specifically to be cited is the Committee of Aviation Medicine, of the National Research Council, the Aeronautical Board, and the U.S.A.F. Technical Committee. These agencies quite completely acquaint the Medical Service of the Air Force, the Bureau of Medicine and Surgery and the Bureau of Aeronautics with each other's aeromedical programs. In the field of research in preventive medicine, there is BuMed representation at meetings of the Army Epidemiological Board, where programs are discussed and important problems or research findings are described.

In most of the other "medical" fields, such as surgery, medicine, psychiatry, etc., there are Advisory Committees meeting under the aegis of the Division of the Medical Sciences, National Research Council. These advisory scientific bodies receive financial support from the Army and Navy, and there are representatives from the three Departments designated as Liaison or service members. Thus a common meeting ground and forum are sustained.



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In summary, the considerations entertained do not sustain the concept of unified control, except in the field of medical development. Most of the deliberations disfavor such action as being purposeless, or even inimical, to the medical research effort. Some activities can be pulled together more effectively, and recommendations will so state. It is agreed that the Research and Development Board is fully capable of insuring coordination and will, undoubtedly, enhance the medical research programs of the Armed Forces.

F. RECOMMENDATIONS.

The Subcommittee in unanimous agreement recommends the following:

(1) That the present management-control of the separate medical research activities maintained by the three services be not disturbed.

(2) That the Chiefs of medical research of the three departments meet at regular intervals, on call of the senior chief, and not less frequently than once a month, to

(a) Discuss with one another all new project proposals received since the previous meeting, in order to

(1) In the case of projects for accomplishment in service facilities, determine

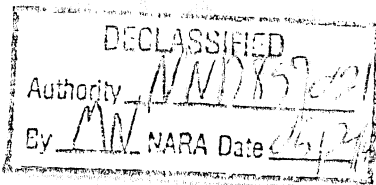
a. Which service facility is best equipped to undertake the project, and

b. What assistance or cooperation, either by personnel or research tools should be furnished by facilities of the other armed forces, but

c. The right of any of the three research chiefs to undertake a project independently shall not be denied by the above reviews.

(2) In the case of projects for accomplishment by contract in civilian institutions, decide which projects should be undertaken in joint sponsorship and support.

(3) That where joint support of research projects is agreed upon, the service which is primarily interested, or which is the initial sponsor of a particular project, will cause the contract to be negotiated through its regularly designated channels, and will bill the contributing services for their agreed portion of the cost, on a Standard Form 1080 to effect reimbursement. The contracting agency will then also act as the legal agent in this particular project, will keep records as to the obligation and expenditure of said project funds, and will be responsible for all reports.



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(4) That the Research and Development Board of the National Defense Establishment be asked to study contracting methods and procedures in the Medical Services of the Armed Forces with a view toward promoting:

- (a) Uniformity,
- (b) Standardization of overhead charges, and
- (c) Extension of period of availability of appropriated funds.

(5) That, giving practical consideration to the limitations imposed by command and administrative aspects and responsibilities, particularly in the fields of bacteriological and radiological warfare, all research in the fields of medicine or medical allied sciences should be conducted under the technical supervision of the Surgeon General (or Air Surgeon) concerned.

(6) That the novel, unique or unusual research facilities of one Service be utilized by all of the Services, when desirable, after appropriate and mutually satisfactory arrangements are effected.

(7) That greater consideration be given to the pooling of research resources into jointly conducted projects where common and mutual concern exists and where the specialized nature of facilities or personnel suggest this action.

(8) That medical materiel development be undertaken as a jointly controlled, staffed, and financed activity, centered in an Armed Forces Engineering Development Laboratory (Annex D).

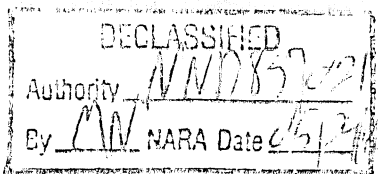
G. Implementation.

Approval, by proper authority, will constitute sufficient implementation for any or all of the recommendations embodied in this report.

s/
W. DANA
Captain (MC) USN

s/
DON LONGFELLOW
Colonel (MC) USA

s/
OTIS O. BENSON, JR.
Colonel (MC) USA (AF)



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SECRET

National Military Establishment
RESEARCH AND DEVELOPMENT BOARD
Washington 25, D. C.

25 October 1948

COMMITTEE ON CHEMICAL WARFARE

DIRECTIVE

PANEL ON CHEMICAL WARFARE PROGRAMS

1. ORGANIZATION

1.1 The Panel on CW Programs is established as an agency of the Committee on Chemical Warfare of the Research and Development Board.

1.2 The Panel on CW Programs will establish the following four sub-panels to enable the more effective accomplishment of its objective:

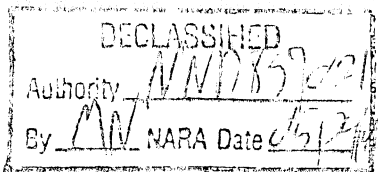
- (1) Sub-panel on Agents
- (2) Sub-panel on Weapons, Munitions and Dissemination
- (3) Sub-panel on Medical and Toxicological Aspects
- (4) Sub-panel on Detection, Protection and Decontamination

2. OBJECTIVE

The fundamental objective of the Panel on CW Programs shall be:

2.1 To analyze and evaluate the chemical warfare research and development program and to make recommendations for the improvement of this program in relation to the over-all aim of the national defense effort leading to the formulation of an integrated program in this field.

2.2 To act as an informative and consultative agency to the Committee on Chemical Warfare and its panels.



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3. MEMBERSHIP

3.1 Members.

(1) The Panel on CW programs shall consist of no more than 11 members. Civilian members, one of whom shall be Chairman, shall be appointed by the Chairman of the Committee on Chemical Warfare. The Departments of the Army, Navy and Air Forces shall be invited to nominate two members each, subject to the approval of the Committee.

(2) Whenever possible, chairmen of the sub-panels shall be appointed from the civilian membership of the Panel on CW Programs by the chairman of that panel.

(3) Members shall serve on the Panel until the mission of the Panel has been accomplished or until their successors have been appointed.

3.2 Deputy Members.

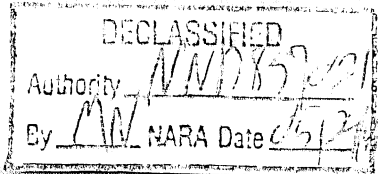
A deputy to substitute with plenary powers for each regular member may be designated by the appropriate appointing authority.

3.3 Associate Members.

A major agency of the Departments of the Army, Navy and Air Force having direct interest in the functions of the Panel, and not represented by a regular member, may formally designate a qualified representative to act as an associate member. However, no department may designate more than three associate members.

4. PROCEDURE

4.1 The Panel on CW Programs shall be encouraged to function as an independent entity within the limits of this directive and the Charter of



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5. TERMS OF REFERENCE

In pursuit of its stated objective the Panel on CW Programs shall:

5.1 Obtain complete information as required on the program, progress, plans and budgets in the field of chemical warfare.

5.2 Analyze and evaluate this information in order to:

(1) Establish the major goals and problems in the field of chemical warfare research and development.

(2) Assess the adequacy of the plans, programs and projects and assess the merit and effectiveness with which programs are handled.

(3) Determine the presence of unjustifiable duplication of effort in the field of chemical warfare research and development, with due regard to the responsibility for fostering competition where the added progress achieved thereby justifies the added expense.

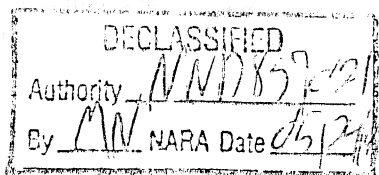
(4) Determine the presence of serious gaps which exist in the programs.

(5) Assess the adequacy of facilities, personnel and equipment currently available and estimate future requirements.

(6) Assess the degree of coordination obtained in the programs for chemical warfare research and development, including that reflected in budget requests.

5.3 Act as an informative and consultative agency to the Committee on Chemical Warfare and make recommendations on the following:

(1) Policies for increasing the effectiveness with which research and development in the field of chemical warfare will contribute to a strong and unified national defense.



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(2) Allocation, and when desirable reallocation, of responsibility between the military departments for existing chemical warfare research and development programs or projects and for new fields of chemical warfare research which should receive emphasis, considering optimum employment of available personnel and facilities, relative importance, operational and tactical requirements, new developments, and relative skill and effectiveness in the conduct of programs.

(3) Means whereby maximum advantage may be taken of critical resources and new advances, solution of problems may be speeded, undesirable duplication, waste or neglect may be avoided, and liaison, cooperation and direct dealing among agencies may be furthered.

DECLASSIFIED	
Authority	ANNEX 21
By	NARA Date 6/2/74

THE RESEARCH AND DEVELOPMENT BOARD
Washington 25, D. C.

EC 192/4 COVER

Agenda to the 88th Meeting

Item No. 5 - Procedure for Handling Coordination of Air Navigation
Development Board Budget

Attached: EC 192/4, Memo to Chairman, RDB, from Major General
E. M. Powers, dated 25 October 1948

The attached memorandum is presented to Council for review of
paragraph 3. and consideration of taking action in accordance with
General Powers' suggestions.